



high availability  
systems  
engineering

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installation  
checklist

## installation checklist - ProLiant DL380 G4 Packaged Cluster with MSA500 G2 storage using Microsoft Windows Server 2003, Enterprise Edition

### hp ProLiant DL380 Packaged Cluster



The ProLiant DL380 G4 Packaged Cluster with MSA500 G2 consists of two ProLiant servers and MSA500 G2 storage. Pre-packaged in a cost effective, space efficient fixture, it gives you the most affordable clustering solution for Microsoft Windows Server 2003, Enterprise Edition.

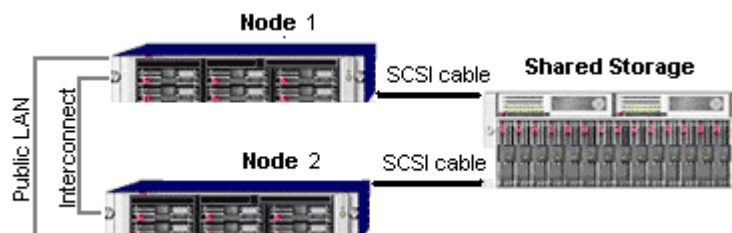
#### ProLiant DL380 G4 Server Highlights

- Intel Xeon processors with EM64T, a 800MHz FSB
- PC2-3200R 400MHz DDR2 Memory
- Integrated Ultra320 Smart Array 6i Controller
- NC7782 Dual Port PCI-X Gigabit Server Adapter
- Three available 64-bit PCI-X slots

#### Modular Smart Array 500 G2 Storage Highlights

- Battery-Backed 256M cache, upgradeable to 512M.
- Fourteen hot-plug drive bays.
- Optional redundant MSA storage controller.
- Optional 4-Port I/O module.

### hardware cabling scheme



## introduction

Microsoft Windows Server 2003, Enterprise Edition is an extension of the Microsoft Windows 2000 operating system environment developed to enhance the customer experience and to improve the overall usability and deployment.

General cluster improvements for Microsoft Windows Server 2003, Enterprise Edition include:

- **Larger cluster sizes** – While Enterprise Edition now supports up to 8 nodes, the HP ProLiant DL380 Packaged Cluster supports a maximum of 2 nodes.
- **Enhanced cluster installation wizard** – built-in validation and verification function to help ensure base components are ready to be clustered.
- **Installation** – cluster binaries are automatically copied during the operating system installation.
- **Multi-node addition** – multiple nodes can be added in a single operation instead of one by one.
- **Active Directory integration** – tighter integration including a “virtual” computer object, Kerberos authentication, and a default location for services to publish service control points. Users can access the virtual server just like any other Windows server.

This checklist provides step-by-step ProLiant Packaged Cluster operating system installation and cluster configuration directions using Microsoft Windows Server 2003, Enterprise Edition.

## software and hardware pre-checks

The following table provides a checklist of the required software versions and, if applicable, any items to execute before beginning the installation. Place a checkmark (✓) in the box after completing each step.

✓	Software and Hardware Pre-checks
<input type="checkbox"/>	Refer to the MSCS Support Matrix for the ProLiant DL380 Packaged Cluster which is located at: <a href="http://h18004.www1.hp.com/solutions/enterprise/highavailability/answercenter/configuration-all.html">http://h18004.www1.hp.com/solutions/enterprise/highavailability/answercenter/configuration-all.html</a> <b>Important:</b> This support matrix represents the quality tested and supported ProLiant DL380 Packaged Cluster configurations. Customers should select from the column of deliverables that are relevant to the configuration they require.
<input type="checkbox"/>	SmartStart 7.10 or later.
<input type="checkbox"/>	Microsoft Windows Server 2003, Enterprise Edition software and documentation.
<input type="checkbox"/>	Modular Smart Array 500 G2 (MSA500 G2) Storage controller firmware. The latest firmware can be obtained from the link above.
<input type="checkbox"/>	Smart Array 6i controller firmware. The latest firmware can be obtained from the link above.
<input type="checkbox"/>	Ensure that any shared storage configuration that may currently exist is erased.
<input type="checkbox"/>	Review and understand any <i>Read This First (RTF)</i> cards that were shipped with the product.
<input type="checkbox"/>	Ensure all hardware is installed and properly cabled.

## information gathering

The following table provides a checklist for the required input parameters that will facilitate the operating system and cluster installation. Write the information in the values column next to each item. Place a checkmark (✓) in the box after completing each step.

✓	Item	Values	
<input type="checkbox"/>	Name for each node	Node 1:	Node 2:
<input type="checkbox"/>	Public network connection IP address and subnet mask for each node	Node 1	Node 2
		IP address:	IP address:
		Subnet mask:	Subnet mask:
<input type="checkbox"/>	Private network connection (cluster heartbeat) IP address and subnet mask for each node	Node 1	Node 2
		IP address:	IP address:
		Subnet mask:	Subnet mask:
<input type="checkbox"/>	Cluster name:		
<input type="checkbox"/>	Cluster IP address and subnet mask:	IP address: Subnet mask:	
<input type="checkbox"/>	Default gateway address:	IP address: Subnet mask:	
<input type="checkbox"/>	WINS server address:	IP address: Subnet mask:	
<input type="checkbox"/>	DNS address:	IP address: Subnet mask:	
<input type="checkbox"/>	Local machine Administrator password (used during OS installation):	Know the Administrator password	
<input type="checkbox"/>	Domain name:		
<input type="checkbox"/>	Domain administrator user name and password (used during OS installation to have the machine join the domain):	Know the user name and password	
<input type="checkbox"/>	Domain account name and password for cluster service (this account has special privileges on each cluster node):	Know the user name and password	

## node 1 installing operating system

The following table provides a checklist for installing the operating system for Node 1. Place a checkmark (✓) in the box after completing each step.

✓	Node 1 Installing Operating System
<input type="checkbox"/>	Power on the shared storage.  <b>Note:</b> You must power on the MSA500 G2 Storage before powering on either servers. After powering on, wait until the storage system startup complete message appears on the display. It may take up to two minutes for the storage system to completely power up.
<input type="checkbox"/>	Power on Node 1.
<input type="checkbox"/>	While the server boots, the ROM-Based Setup Utility (RBSU) and the Option ROM Configuration for Arrays (ORCA) utility are automatically configured to prepare the server for the operating system installation.  To configure these utilities manually: <ul style="list-style-type: none"> <li>– Press the <b>F8</b> key when prompted during the array controller initialization to configure the array controller using ORCA.</li> <li>– Press the <b>F9</b> key when prompted during the boot process to change the server settings, such as the setting for language and operating system, using RBSU.</li> </ul>
<input type="checkbox"/>	Boot the server with the SmartStart CD in the CD-ROM drive and follow the SmartStart on-screen instructions.  <b>Important:</b> Do not configure the shared storage drives at this time.
<input type="checkbox"/>	Insert the operating system CD when prompted to complete the installation process.
<input type="checkbox"/>	Once the Windows Server 2003, Enterprise Edition installation completes, log in to the server. This action starts the HP Support Pack installation.
<input type="checkbox"/>	Each cluster node requires at least two network adapters—one connected to a public network, and one connected to a private network.  <u>For the public network connection:</u> If the network adapter can transmit at multiple speeds, then manually specify a speed and duplex mode. The speed for the network adapter should be hard coded (manually set) to be the same on all nodes according to the card manufacturer's specification.  <b>Best Practice:</b> To provide a maximum level of redundancy, use NIC Teaming capabilities for selected HP network products to provide a redundant public network connection. Please note, however, that NIC Teaming is unsupported for the private network connection
<input type="checkbox"/>	Configure the TCP/IP settings for the public network connection.
<input type="checkbox"/>	<u>For the private network connection:</u> To eliminate possible private network cluster communication issues, refer to Microsoft Knowledge Base (KB) article <b>258750</b> to properly setup the private network. <a href="http://support.microsoft.com/default.aspx?scid=kb;en-us:Q258750">http://support.microsoft.com/default.aspx?scid=kb;en-us:Q258750</a>
<input type="checkbox"/>	Configure the TCP/IP settings for the private network connection.
<input type="checkbox"/>	Join the Windows Domain and reboot when prompted.
<input type="checkbox"/>	After the reboot, log the machine into the domain.
<input type="checkbox"/>	When the installation is complete, shutdown Node 1.

## node 2 installing operating system

The following table provides a checklist for installing the operating system for Node 2. Place a checkmark (✓) in the box after completing each step.

✓	Node 2 Installing Operating System
<input type="checkbox"/>	Power on Node 2.
<input type="checkbox"/>	<p>While the server boots, the ROM-Based Setup Utility (RBSU) and the Option ROM Configuration for Arrays (ORCA) utility are automatically configured to prepare the server for the operating system installation.</p> <p>To configure these utilities manually:</p> <ul style="list-style-type: none"> <li>– Press the <b>F8</b> key when prompted during the array controller initialization to configure the array controller using ORCA.</li> <li>– Press the <b>F9</b> key when prompted during the boot process to change the server settings, such as the setting for language and operating system, using RBSU.</li> </ul>
<input type="checkbox"/>	<p>Boot the server with the SmartStart CD in the CD-ROM drive and follow the SmartStart on-screen instructions.</p> <p><b>Important:</b> Do not configure the shared storage drives at this time.</p>
<input type="checkbox"/>	Insert the operating system CD when prompted to complete the installation process.
<input type="checkbox"/>	Once the Windows Server 2003, Enterprise Edition installation completes, log in to the server. This action starts the HP Support Pack installation.
<input type="checkbox"/>	<p>Each cluster node requires at least two network adapters—one connected to a public network, and one connected to a private network.</p> <p><u>For the public network connection:</u> If the network adapter can transmit at multiple speeds, then manually specify a speed and duplex mode. The speed for the network adapter should be hard set (manually set) to be the same on all nodes according to the card manufacturer's specification.</p> <p><b>Best Practice:</b> To provide a maximum level of redundancy, use NIC Teaming capabilities for selected HP network products to provide a redundant public network connection. Please note, however, that NIC Teaming is unsupported for the private network connection</p>
<input type="checkbox"/>	Configure the TCP/IP settings for the public network connection.
<input type="checkbox"/>	<p><u>For the private network connection:</u> To eliminate possible private network cluster communication issues, refer to Microsoft Knowledge Base (KB) article <b>258750</b> to properly setup the private network. <a href="http://support.microsoft.com/default.aspx?scid=kb;en-us:Q258750">http://support.microsoft.com/default.aspx?scid=kb;en-us:Q258750</a></p>
<input type="checkbox"/>	Configure the TCP/IP settings for the private network connection.
<input type="checkbox"/>	Join the Windows Domain and reboot when prompted.
<input type="checkbox"/>	After the reboot, log the machine into the domain.
<input type="checkbox"/>	When the installation is complete, shutdown Node 2.

## configuring the shared storage

The following table provides a checklist of the steps necessary to configure the Smart Array Cluster Storage. Place a checkmark (✓) in the box after completing each step.

✓	Configuring the Shared Storage
<input type="checkbox"/>	Power on Node 1.
<input type="checkbox"/>	From the desktop of Node 1, launch the hp Array Configuration Utility: Select <b>Start → Programs → hp System Tools → hp Array Configuration Utility</b> <b>Important:</b> The Internet Connection Wizard pop-up screen may appear. Internet Explorer must be configured appropriately in order to use the Array Configuration Utility (ACU).
<input type="checkbox"/>	Select the <b>MSA500 G2 Controller</b> to configure the shared storage hard drives.
<input type="checkbox"/>	Configure the shared storage drives. <b>Important:</b> Create a virtual disk on the MSA500 G2 Storage with at least 510 MB of space. Microsoft recommends at least 500MB for the cluster quorum drive but the extra space for the logical disk in ACU is to account for disk size calculations required by ACU. 510MB will ensure that this disk's size will be at least 500MB of formatted drive space for use as the quorum drive. Refer to Microsoft Knowledge Base Article - 280345 or the help documentation on the cluster node for more information on cluster disk sizes
<input type="checkbox"/>	After the shared storage drives are configured: Select <b>Start → Programs → Administrative Tools → Computer Management</b> . From the tree on the left hand side select <b>Disk Management</b> to create volumes out of the logical drives. Be sure to assign drive letters and format the volumes as NTFS. Assigning disks labels such as "DiskF" will greatly aid in ensuring that all nodes of your cluster have detected the shared disks in the proper sequence. <b>Important:</b> Do not convert the logical drives from Basic to Dynamic. Cluster Services for Microsoft Windows Server 2003, Enterprise Edition does not support dynamic disks.
<input type="checkbox"/>	Close <b>Disk Management</b> .

## creating the cluster

The following table provides a checklist for creating the cluster from Node 1. Place a checkmark (✓) in the box after completing each step.

✓	Creating the cluster
<input type="checkbox"/>	On Node 1: Select <b>Start → Programs → Administrative Tools → Cluster Administrator</b> .
<input type="checkbox"/>	Select <b>Create New Cluster</b> from the <i>Action</i> drop-down box. Click <b>OK</b> .
<input type="checkbox"/>	Click <b>Next</b> on the welcome screen.
<input type="checkbox"/>	Select the domain to create the cluster in and enter a name for the cluster. Click <b>Next</b> .
<input type="checkbox"/>	Enter the name of the first server to be in the cluster. Click <b>Next</b> .
<input type="checkbox"/>	When the cluster wizard finishes analyzing the configuration. Click <b>Next</b> .
<input type="checkbox"/>	Enter the IP address for the cluster. Click <b>Next</b> .
<input type="checkbox"/>	Enter the username and password for the cluster. Click <b>Next</b> .
<input type="checkbox"/>	Verify the proposed cluster configuration. Click <b>Next</b> .

<input type="checkbox"/>	When the wizard has finished creating the cluster, click <b>Next</b> and then click <b>Finish</b> .
<input type="checkbox"/>	Select <b>Start → Settings → Control Panel → hp Management Agents</b> . In the list of <b>Inactive Agents</b> , select <b>Clustering Information</b> and click <b>Add</b> to move this agent to the list of active agents.
<input type="checkbox"/>	Click <b>OK</b> and then restart the agents when prompted.

## joining node 2 to the cluster

The following table provides a checklist for the process of joining Node 2 to the cluster. Place a checkmark (✓) in the box after completing each step.

✓	<b>Joining Node 2 to the Cluster</b>
<input type="checkbox"/>	Power on Node 2.
<input type="checkbox"/>	From Node 2, select <b>Start → Programs → Administrative Tools → Cluster Administrator</b> .
<input type="checkbox"/>	Select <b>Add nodes to cluster</b> from the <i>Action</i> drop-down box. Enter the name of the cluster to join, click <b>OK</b> .
<input type="checkbox"/>	Click <b>Next</b> on the welcome screen.
<input type="checkbox"/>	Enter the name of the server that you want to join the cluster, click <b>Add</b> and then click <b>Next</b> .
<input type="checkbox"/>	When the cluster wizard finishes analyzing the configuration, click <b>Next</b> .
<input type="checkbox"/>	Enter the password for the cluster. Click <b>Next</b> .
<input type="checkbox"/>	Verify the proposed cluster configuration. Click <b>Next</b> .
<input type="checkbox"/>	When the wizard has finished adding the node to the cluster, click <b>Next</b> and then click <b>Finish</b> .
<input type="checkbox"/>	Select <b>Start → Settings → Control Panel → hp Management Agents</b> . In the list of <b>Inactive Agents</b> , select <b>Clustering Information</b> and click <b>Add</b> to move this agent to the list of active agents.
<input type="checkbox"/>	Click <b>OK</b> and then restart the agents when prompted.

## validating the cluster

To validate the cluster installation, perform the following steps from any cluster node. Place a checkmark (✓) in the box after completing each step.

✓	<b>Validating the Cluster</b>
<input type="checkbox"/>	From the desktop of any node: Select <b>Start → Programs → Administrative Tools → Cluster Administrator</b> , and connect to the cluster.
<input type="checkbox"/>	Right click on one of the cluster groups and select <b>Move Group</b> .
<input type="checkbox"/>	Verify the group fails over to the other node, and all resources come online.
<input type="checkbox"/>	Right click on the same cluster group and select <b>Move Group</b> .
<input type="checkbox"/>	Verify the group fails back to the original node, and resources come online.
<input type="checkbox"/>	Repeat the cluster validation steps for each group.

The installation is now complete.

**for more  
information**

To learn more about HP High Availability and ProLiant Clusters visit the following Web site:  
<http://www.hp.com/servers/proliant/highavailability>.

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